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ABSTRACT

This 44-item, annotated bibliography provides an overview of the major viewpoints and methods in current technical writing practice and instruction. It is intended for instructors, students, and managers of engineering firms. Entries are presented in three categories. The first category (8 entries)) focuses on the requirements for technical writing skills for the individual engineer within the engineering organization and within the general engineering profession. The second category (23 entries) considers methods of instruction used to train engineering students to technical writing proficiency. The third and final category (13 entries) provides a listing of articles which address the techniques of writing proficiency and/or writing productivity. A subject index (keyed to document number) is included. (JN)

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Technical writing and communications in engineering organization. Requirements, methods of instruction and techniques. A selected, annotated bibliography.

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Technical writing and communications in engineering organization. Requirements, methods of instruction and techniques. A selected, annotated bibliography.

Introduction

This brief bibliography provides an overview of the major viewpoints and methods in current technical writing practice and instruction. This bibliography is intended for both the instructor, the student, and the manager of the engineering firm.

One of the most clear problems confronting todays engineering organization is the retreivel and dissemination of information both within and outside the organizational environment. One cause of this problem is the inability of engineers to attain proficiency in technical writing. This is a shortfall that cannot be made up by the increasing use of machine-based literature searching, not by the introduction of office automation systems. For the engineer with inadequate communications skills cannot use these productivity enhancement techniques without the fundamental skills represented by technical writing.

This bibliography will be followed by two other projects presently nearing completion: a bibliography on the use of technical literature collections in engineering libraries, and a bibliography on manual-writing.

It is hoped that these three bibliographic products will enhance the information processing skills of line engineers by making the literature more available to technical writing instructors and engineering organization managers (the latter themselves frequently former engineers with superior communications skills).

Technical writing and communications in engineering organizations. Requirements, methods of instruction and techniques. A selected, annotated bibliography.

REQUIREMENTS

This section provides a brief overview of the requirement for technical writing skills for the individual engineer within the engineering organization and within the general engineering profession.

Document 1

----- "What a chemical engineer needs to know--other than chemistry", Chemical and Engineering News, 58(42), October 1980, pp. 42-46.

This article reviews the various skills that are required by the chemical engineer to be able to function within his profession. The requirements include computer science, foreign language, economics, toxicology and technical writing.

Document 2

Brillhart, L.V., and M.B. Debs. "A survey of writing and technical writing courses in engineering colleges", Engineering Education, 74(2), November 1983, pp. 110-113.

A survey of almost 200 colleges that provide instruction in technical writing as part of the engineering curriculum.

Document 3

Davis, Richard M. "How important is technical writing?--A survey of the opinions of successful engineers", Technical Writing Teacher, 4(3), Spring 1977, pp. 83-88.

Based on a survey of professional engineers, this study emphasizes the necessary character of a strong technical writing component in engineering training.

Document 4

Davis, Richard M. Technical writing: Its imporatnce in the engineering profession and its place in the engineering curricula--A survey of the experience and opinions of prominent engineers. Technical report 75-5. Wright-Patterson AFB, OH: Air Force Institute of Technology, 1975. 84p. ED-116-224.

The detailed material on which the prior citation is based, this report includes the full results of the survey. The engineers spend 24% of their time writing. Fully 80.5% believe that technical writing should be a required course. Writing is seen as an essential skill for the professional engineer.

Document 5

Davis, Richard M. "Technical writing: Who needs it?", Engineering Education, 68(2), November 1977, pp. 209-211.

A second summary document providing an overview of the survey conducted to gauge the value ascribed by professional engineers to technical writing skills. The respondants emphasize the value of the technical writing to the engineer.

Document 6

Durfee, Patricia Bernadt. "Responding to industry: Writing in a High Tech world", Improving College and University Teaching, 32(4), Fall 1984, pp. 180-184.

In attempting to measure the skills that are desired by local "High Tech" firms, a survey was conducted among some of them. The findings describe the technical writing skills seen as important by this group of prospective employers of the engineering graduates.

Document 7

Leesley, M.E., and M.L. Williams, Jr. "All a chemical engineer does is write", Chemical Engineering Education, 12(4) Winter 1978, pp. 188-192.

This article describes a program emphasizing technical writing skills for the freshman chemical engineering student. The premise of the course is that no other single skill is as important to the professional engineer as the ability to communicate clearly.

Document 8

Spretnak, Charlene M. "A survey of the frequency and importance of technical communication in an engineering career", Technical Writing Teacher, 9(3), Spring 1982, pp. 133-136.

Describes the results of a survey conducted among engineers on the problems and requirements that engineers have facility in public speaking and technical writing.

Technical writing and communications in engineering organizations. Requirements, methods of instruction and techniques. A selected, annotated bibliography.

METHODS OF INSTRUCTION

This section considers the many methods of instruction used to train engineering students to technical writing proficiency. This methods of instruction are the basis upon which individual skills required in an organizational and professional context are developed.

Document 9

-----Conference on the teaching of technical writing. Held in Carbondale, IL, October 20-21, 1978. Carbondale, IL: Southern Illinois University, 1978. 55p. ED-172-199.

A collection of papers including teaching of technical writing, essential elements of the technical writing course, and technical writing as communication.

Document 10

American Institutes for Research. Draft specifications for an undergraduate course in professional writing. Washington, DC: American Institute for Research, 1979. 8p. ED-192-335.

This program plan presents the elements considered to be important for the development of a technical writing course. The six elements include: decision making, pre-writing steps, writing a document, editing and revising, evaluation, and legal drafting and forms design.

Document 11

Andrews, Deborah C. "Teaching writing in the engineering classroom", Engineering Education, 66(2), November 1975, pp. 169-174.

This article describes the instruction of technical writing as an integral part of metallurgical engineering courses taught jointly by English and engineering instructors. Required papers and reports are the basis of technical writing instruction.

Document 12

Andrews, Deborah C. "Writing workshops for engineering and business faculty", paper presented at the Annual Meeting of the Conference on College Composition and Communication. Held in Minneapolis, MN, April 1979. 7p. ED-172-210.

This article describes a seminar prepared for the faculty and administrators who must accept the value of a technical writing program for their engineering students. The presentation stresses the value of the writing program for the students in the engineering program.

Document 13

Book, Virginia A., editor. The council for programs in technical and scientific communication. Proceedings. Held in Buena Vista, FA, February 1980. 116p. ED-252-868.

Eleven papers oral communication, applications of the computer in technical writing, guidelines for student internships, and technical communication degree programs for the undergraduate.

Document 14

Burkett, Allan R., and Susan B. Dunkle. "Technical writing in the undergraduate course", Journal of Chemical Education, 60(6), June 1983, pp. 469-470.

This article focuses on five areas in which the engineering student tends to have problems in technical writing: literature searching, organization, plagaism, drawing conclusions and editing.

Document 15

Covington, David H., et al. "A writing assistance program for engineering students", Engineering Education, 75(2), November 1984, pp. 91-94.

Describing the technical writing assistance program at North Carolina State University, this article gives and overview of its elements: seminars, teaching, tutoring, and advisory services.

Document 16

David, Carl W. "Why didn't you teach me how to write", College Board Review, 125, Fall 1982, pp. 10-11,30.

This article describes a technical writing instructional method based on having students write about problem solution in their fields. The theme is of tying the writing exercise directly to the students engineering studies focus.

Document 17

Dobrin, David N. "What's diffucult about teaching technical writing", paper presented at the Annual Meeting of the Modern Language Association of America. Held in Houston, TX, &ecember 1980. 11p. ED-198-550.

This paper addresses three problem in technical writing instruction: initial problems of the technical writing teacher in preparing for the new subject content, the diffuculty in judging the technical writing products (suggesting the use of evaluation teams with subject expertise), and the transitory nature of technical writing in an environment of changing technology.

Document 18

Estrin, H.A. "Motivating engineering students to publish in professional magazines", ABCA Bulletin, 44(2), June 1981, pp. 38-40.

This article proposes that encouraging the student to publish articles is a good way in which to encourage the student in professional growth and in better technical writing proficiency.

Document 19

Estrin, Herman A., et al. The teaching of college English to the scientific and technical student. Final report of the Committee on College English for the Scientific and Technical Student, National Council of Teachers of English. Champaign, IL: National Council of Teachers of English, 1963. 83p. ED-020-197.

An evaluation of technical writing requirements and methods, with an emphasis on the teaching of technical writing to engineering and scientific student. Builds on the premise that writing skills must be based in the Humanities. Includes a bibliography.

Document 20

Farkas, David. "A course and curriculum in advanced technical writing", paper presented at the Annual Meeting of the Conference on College Composition and Communication. Held in San Francisco, CA, March 1982. 11p. ED-215-360.

This course is designed for upper division students and includes: extensive work in editing, drafting bid specification, on-line searching demonstration, drafting of a public announcement, and finally the preparation of a document for a campus department. A section on ethics is included, taught by a faculty member of the philosophy department.

Document 21

Kelley, Patrick M., et al, editors. The Council for programs in technical and scientific communication. Proceedings. Held in Lincoln, NB, April 1983. 138p. ED-252-871.

Ten papers included in this proceedings cover: technical writing internships, design of a minor in technical writing for engineering majors, and problem-solving in technical writing teaching.

Document 22

Khachaturian, Armen, and Herman A. Estrin. "Teaching in-house technical communication courses", ABCA Bulletin, 46(2), June 1983, pp. 42-48.

This article describes and outlines an in-house course for technical writing skills. Designed to be presented to the members of an engineering firm, the two foci of the course are written and oral communication's effectiveness.

Document 23

Kiyama, Ken, and Ellen Nold. "Engineering students teach each other to write", Engineering Education, 69(4), January 1979, pp. 334-337.

This article describes the Stanford School of Engineering Communications Project. This effort utilizes the skills of engineering students with good technical writing abilities in tutoring other students.

Document 24

Mathes, J.C., and Dwight W. Stevenson. "Completing the bridge: Report writing in "real life" engineering courses", Engineering Education, 67(2), November 1976, pp. 154-158.

This paper emphasizes the difference between the typical writing exercises used to train engineering students and the types of reports that they are actually going to be working with. The paper stresses that technical writing courses must be more closely tied to "real-life" patterns of communication and formats.

Document 25

Mathes, J.C., et al. "Technical communication: The engineering educator's responsibility", paper presented at the Annual Meeting of the American Society for Engineering Education. Held at Fort Collins, CO, June 1975. 19p. ED-118-449.

This article strongly urges that teaching of technical writing be a responsibility of the engineering departments. Otherwise, it is argued, the irrelevent type of exercises often used will discourage the engineering student from developing proficiency in technical writing.

Document 26

Mathes, J.C., and Thomas E. Pinelli, co-compilers. Technical communication: Perspectives for the eighties. Part I. Proceedings of the technical communication sessions of the annual conference on college composition and communication. Held in Dallas, TX, March 1981. 30 p. Hampton, VA: NASA, Langley Research Center, 1981. 304p. ED-211-986.

Thirty-four papers are included in this profeedings. The topics covered include: use of case studies, use of graphics and preparation fot the growing numbers of non-English speaking engineering students in the US.

Document 27

Morrill, Paul H., and Vivienne V. Hertz, editors. Notes and papers from the First Annual Workshop on the teaching of technical writing. Held at Southern Illinois University, Carbondale, IL, October 1977. 59p. ED-154-429.

A wide ranging sets of materials are included in this document on technical writing instruction, including: writing engineering reports, house organs, proposals, job application letters, use of tutorial methods in technical writing instruction, and publication opportunities for technical writing instructors.

Document 28

O'Donoghue, R. "Incorporating the principles of good writing into the engineering curriculum", Engineering Educator, 74(7), April 1984, pp. 664-665.

Describes a program to emphasize good technical writing skills by incorporating techniques of good writing into the structure of the engineering courses.

Document 29

Roundy, Nancy. "Teach-teaching technical writing: A practical approach to a practical discipline", Technical Writing Teacher, 9(1), Fall 1981, pp. 23-24.

This article emphasizes the imporatnce that team-teaching can have in the integration of technical writing into the engineering curriculum: provision of subject expertise in both the engineering and writing subject areas.

Document 30

Spears, James E. "A simulated writing experience", Engineering Education, 69(4), January 1979, pp. 342-344.

This paper focuses on the use of an exercise in manual writing as the method for teaching technical writing. Since manual writing is a very large part of what the professional engineer will be doing, this exercise has the advantage of direct relevence for the student.

Document 31

Woolston, Donald C. "Incorporating microcomputers into technical writing instruction", Engineering Education, 75(2), November 1984, pp. 88-90.

This article describes the integration of word processors into the technical writing program for engineering students. The purpose of the use of these microcomputers is to both increase writing productivity and writing quality.

T E C H N I Q U E S

This final section of this bibliography provides a listing of articles which address the techniques of writing proficiency and or writing productivity.

Document 32

Aluri, Rao. Library-use instruction for engineering students. 1977. 11p. ED-143-367.

This article describes the value of library tools in aiding the reserahc project of the engineering student. The paper also advocates the more complete development of local resource lists for the engineering student. An appendix provides guidelines for developing literature search requests.

Document 33

Bird, R. Byron. "Book writing and chemical engineering education: Rites, rewards and responsibilities", Chemical Engineering Education, 17(4), Fall 1983, pp. 184-193.

This paper supports the preparation of monographs in engineering fields and explains the value of book writing to engineer, and especially engineering students. Presents guidelines for the development of book length writings.

Document 34

Brogan, Katherine M., and James D. Brogan. "Yet another ethical problem in technical writing", paper presented at the Annual Meeting of the College English Association. Held in Hosuton, TX, April 1982. 9p. ED-229-782.

This paper addresses the serious issue of plagarism in technical writing. The article focuses on the problems of summarizing material without plagarizing and on the problems of foreign engineering student lacking a facility in writing effective English.

Document 35

Chaffee, Patricia. "Human engineering and technical writing", Technical Writing Teacher, 10(2-3), Winter-Spring 1983, pp. 130-133.

This article considers the type of relationships that development between writers and editors. The purpose of this examination is to prevent the kind of conflict that can exist between them.

Document 36

Feinberg, Susan. "Feedback on format improves technical writing", Engineering Education, 69(4), January 1979, pp. 339-342.

This article notes that a major problem for the engineering student is the use of a correct format for a study or report. It is recommended that formats for the product be provided by the instructor.

Document 37

Guidry, Nelson P., and Kenneth B. Frye. Graphic communication in science--A guide to format, techniques, and tools. Washington, DC: National Science Teachers Association, 1968. 48p. ED-022-686.

This document details the use of graphic presentations of information in the technical study. The materials covered include: selection of a graphic form, planning its place in the larger context, and techniques.

Document 38

Jackson, Eugene B. Interrelationships among librarians, engineers, and publishers in the publication process. Paper presented at the Annual Conference of the American Society for Engineering Education. Held at College Station, TX, June 1982. 21p. ED-223-257.

This study describes the processes by which monographs in engineering are published. Considering the dissemination processes of several organization, the study concludes with a table of events involved in publishing.

Document 39

Kellogg, Ronald T. Writing habits and productivity in technical writing. Based on a paper presented at the Annual Meeting of the Psychonomic Society. Held in Minneapolis, MN, November 1982. 9p. ED-249-502.

This report summarizes the findings of a survey taken to determine the methods by which technical writers maintain high productivity. Findings include: use of a dictaphone, detailed outline preparation, relaxation, attention to an environment conducive to work, and the use of scheduled work times.

Document 40

Mathes, J.C., and Thomas E. Pinelli, co-compilers. Technical writing: Past, present and future. Hampton, VA: NASA, Langley Research Center, 1981. 75p. ED-199-733.

A collection of papers addressing: history of technical writing, effectiveness of NASA report format, model of technical communication, and ethical implications of report writing.

Document 41

Ransone, R.K. Technical snobbery versus clear communicating. Paper presented at the Annual Meeting of the Conference on College Composition and Communication. Held in Dallas, TX, March 1981. 13p. ED-199-722.

This report attacks the frequent use of technical vocabulary that obscures the content of papers. It is argued that presentations can be made precise without precluding their usefulness to business, media, political and administrative people.

Document 42

Sims, Diana Mae. What is technical English, American style? Paper presented at the Combined Annual Meetings of the American Dialect Society and New Ways of Analysing Variation. Held in Washington, DC, November 1978. 12p. ED-168-347.

It is argued that a definite American style of Technical English must be more closely defined. Some of its salient features are: simple phonology, use of graphics, direct rhetoric, and deductive style.

Document 43

Van Ness, H.C., and M.M. Abbott. "Technical English: English or Techlish", Chemical Engineering Education, 11(4), 1977, pp. 154-159, 173.

This article attacks the use of unclear, overly technical vocabularies in technical writing. It includes examples with methods for increasing prose clarity.

Document 44

Winkler, Victoria M. Communications for engineers: A multi-dimensional approach. Paper presented at the Annual Meeting of the American Society for Engineering Education. Held at Colorado State University, Fort Collins, June 1975. 16p. ED-123-102.

This report surveys the use of new techniques in communications in the transmission of technical information, including: videotape, film and non-verbal communication in oral presentation.

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